

OMNIITOX: Data Quality

The Data Quality Foundation in OMNIITOX Information System

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Extended Summary

Goal and Scope. This paper describes the data quality foundation for the OMNIITOX information system, with regard to data quality requirements and maintenance.

Main Features. The data quality concept applied in the OMNIITOX project is based on results that are successfully used in other contexts (Fig. 1). Specific data quality requirements have been developed, which are applied in data acquisition and data review. The data quality requirements and quality maintenance is supported by the OMNIITOX concept model, which supplies a common language for the users from the different disciplines.

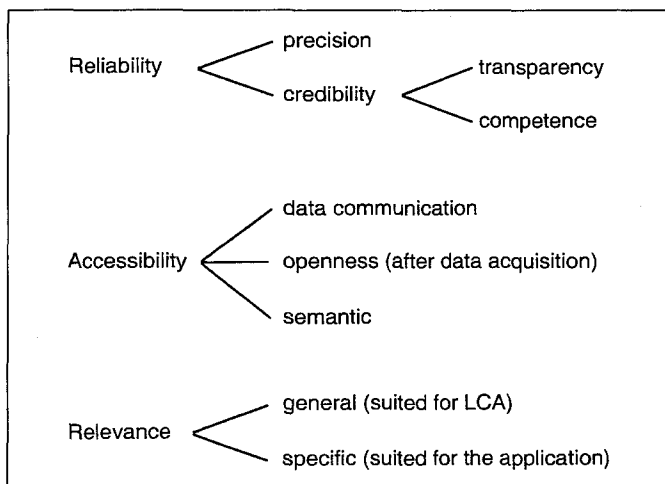


Fig. 1: Data quality concept in OMNIITOX IS (Pålsson 1999)

Results and Discussion. The quality requirements and the concept model have been tested during data acquisition for the information system, and have been found to be a successful framework. The results from practical work demonstrate that it is possible to have a common understanding of the concept model and quality requirements. The user's experience the initial phase of learning the concepts and quality requirements as tedious. Nevertheless, experiences show that the users will benefit from the education during the further work. A considerable amount of data has been acquired based on the data quality foundation.

Conclusions. The data quality foundation has been a successful framework for managing data quality in the design and establishment of the OMNIITOX information system. The data quality concept, the concept model, and specific quality requirements are applied as quality management tools to find, acquire, document, and interpret the information. Several quality issues deriving from interdisciplinary differences between the different users have been resolved, which facilitates a common understanding and reduces the risk of misinterpretations and misuse of information.

Recommendations and Outlook. An important task for the finalization of the OMNIITOX project is to secure the credibility and long-term stability of the information system. The OMNIITOX information system will somewhat have less potential to support the toxicology related assessments in Europe if any of the involved disciplines chooses to reject or not to apply the concept model and the quality requirements.

Keywords: Data quality; data quality management; information system (IS); OMNIITOX

Literature

- Carlson R, Erixon M, Geiron K, Tivander J (2003): Concept model for the OMNIITOX information system. Industrial Environmental Informatics, Chalmers University of Technology, OMNIITOX-report, deliverable D20, Göteborg (pending)
- Carlson R, Erixon M, Pålsson A-C, Tivander J (2004): OMNIITOX concept model supports characterization modeling for LCIA. *Int J LCA* 9 (5) 289–294
- Carlson R, Pålsson A-C (2004): Maintaining Data Quality within Industrial Environmental Information Systems. 12th International Symposium 'Computer Science for Environmental Protection'. Bremen 1998, Band 1/Vol 1, pp 252–265
- Elmasri R, Navathe SB (1989): Fundamentals of database systems. Addison-Wesley World Student Series, Addison Wesley, ISBN 0-201-44-39561-2
- Pålsson A-C (1999): Introduction and guide to LCA data documentation using the CPM data documentation criteria and the SPINE format. CPM Report 1999:1, Chalmers University of Technology, Göteborg, Sweden

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